

REMARKS

Claims 1-20, 22-27, and 37-39 are pending in the application. Claims 1, 6, and 12 are independent claims. Claims 1-4 and 37 have been rejected under 35 § 103(a) based on U.K. 2,289,555 to Wilska in view of U.S. 5,436,635 to Takahara et al. Claim 5 has been rejected under 35 §103(a) based on Wilska, Takahara, and further in view of U.S. 5,394,204 to Shigeta et al. Claims 6-8, 10-19, 21-24, and 38-39 have been rejected under 35 §103(a) based on Wilska, Takahara, Shigeta, and further in view of U.S. 5,856,814 to Yagyu. Claims 9 and 20 have been rejected under 35 §103(a) based on Wilska, Takahara, Shigeta, Yagyu, and further in view of U.S. 5,634,080 to Kikinis et al. Claim 25 has been rejected under 35 §103(a) based on Wilska, Takahara, and Yagyu. And Claims 26 and 27 have been rejected under 35 §103(a) based on Wilska, Takahara, Yagyu, and Shigeta. The rejections are traversed. Reconsideration and further examination are requested.

The Applicants' portable communications device includes a matrix display, a power management circuit that controls the power consumption of a display circuit that actuates pixel electrodes to present an image on the display, and a light source that illuminates the image. After the image has been illuminated, the power management circuit lowers the power consumption of the display circuit until the next image is ready to be presented on the display, without comparing the new image with the previous image. As such, the power management circuit lowers the power consumption of the display circuit between sequentially generated display data. By lowering the power consumption of the display circuit between the writing of images, the power management circuit has the advantageous feature of lengthening the lifetime of the batteries used to power the viewing device.

Wilska, alone or in combination with Takahara, Shigeta, Yagyu, and/or Kikinis, does not teach or suggest a portable communications device with such features, in particular, a power management circuit that lowers the power consumption of the control circuit after the image is illuminated until display data for the next image from the control circuit is ready to be presented

to the matrix display, without comparing the illuminated image with the next image, as required by Claims 1, 6, and 12.

Wilska discusses, as illustrated in its Figures 1-3, a device for personal communication, data collection, and processing. The device includes a housing (1) which encloses a data processing unit (2) that connects to a cellular telephone (17) with a mobile controller (8). The device also includes a display (9) mounted to the housing (1) for displaying images to a user of the device.

We agree with the Office Action that Takahara, unlike Wilska, discusses an active matrix liquid crystal display with a light source. Such a system is said to be usable as a view finder.

Neither Takahara nor Wilska, however, mentions the claimed power management circuit that controls the power consumption of the control circuit, as recited in Claims 1, 6, and 12. Furthermore, neither reference discusses lengthening the lifetime of an energy source used to power the display, which is a particular advantage of the Applicants' power management circuit. Without such an advantage, there is no motivation to include the Applicants' power management circuit in Wilska's nor Takahara's devices.

To address the power management circuit limitations, the Office Action points to Figure 22 of Takahara. In particular, the Office Action relies on the light emitting tube power supply circuit function block (223) and the reproduction circuit function block (225). Those function blocks are discussed at column 31, lines 16-63 of Takahara.

As described by Takahara, the quantity of light emitted by the light emitting tube (211) is varied in proportion to the pulse width to reduce power consumption. That is apparently accomplished by manually rotating a variable resistor. That is not the same as lowering the power consumption of a control circuit "after the image is illuminated until the next image is ready to be resented on the matrix display" as claimed by the Applicants.

Without a power management circuit that lowers the power consumption of the control circuit after an image has been presented until display data for the next image from the control circuit is ready to be presented, Wilska's device, alone or in combination with the teachings of Takahara, cannot include the claimed display with a control circuit and power management circuit that lowers the power consumption of the control circuit between sequentially generated display data, as required by Claims 1, 6, and 12.

The Office Action further cites Shigeta as teaching a dichroic prism interposed between a lens and a matrix display, and Yagyu as teaching a light source with light emitting diodes against independent Claims 6 and 12.

Shigeta discusses, as shown in its Figures 1 and 2, a projection type image display device that includes three metal halide lamps (1), (2), and (3) provided with respective elliptic reflectors (4), (5), and (6), three visible-light filters (7), (8), and (9), three spherical reflectors (10), (11), and (12), and three condenser lens (13), (14), and (15).

Yagyu discusses, as shown in its Figure 18, a display apparatus that includes an optical modulation device with a pair of electrodes (512) and (515), and a photoconductor layer (513) and an optical modulation substance layer (517) between the electrodes. A light signal source (518) supplies light data carrying gradation data to the photoconductor layer (513), and a readout light source (519) supplies readout light for reading out image data to the optical modulation substance layer (517).

Neither Shigeta nor Yagyu, however, teaches or suggests the Applicants' claimed power management circuit. Thus, Shigeta and Yagyu do not overcome the deficiencies of Wilska and Takahara. Accordingly, Wilska, alone or in combination with Takahara, Shigeta, and/or Yagyu, does not make obvious the invention described in Claims 1, 6, and 12. The § 103(a) rejections of Claims 1, 6, and 12 are therefore overcome.

The Office Action also cites Kikinis as teaching a wireless pager against dependent Claims 9 and 20. Like Wilska, Takahara, Shigeta and Yagyu, however, Kikinis does not teach or suggest the claimed power management circuit, and therefore does not overcome the deficiencies of Wilska, Takahara, Shigeta, and Yagyu.

Because claims 9 and 20 and the other rejected claims depend from Claims 1, 6, or 12, the reasons for allowance of Claims 1, 6, and 12 apply as well to the dependent claims.

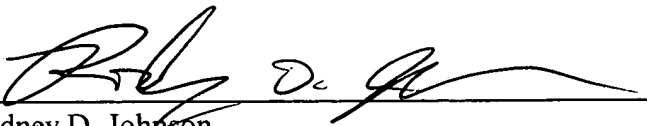
Reconsideration of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims (Claims 1-20, 22-27, and 37-39) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned attorney at (978) 341-0036.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 
Rodney D. Johnson
Registration No. 36,558
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

Dated: *January 26, 2004*